USSR

UDC 669.1:539.292

BUTAKOVA, E. D., EYSMONDT, T. D., and MALYSHEV, K. A., Institute of Physics of Metals, Academy of Sciences USSR

"Influence of Chromium and Nickel on Martensite Conversion During Deformation and the Mechanical Properties of Fe-Ni-Cr Alloys"

Abstract: In Fe-Ni and Fe-Ni-Cr alloys, a decrease in the content of nickel and an increase in the content of chromium cause activation of the martensitic conversion during deformation. It is assumed that activation of the conversion is related to packing defects which develop during deformation and serve as seeds of the martensite.

1/1

USSR

UDC 536.425

BOGACHEV, I. N., and EYSMONDT, T. D., Ural Polytechnical Institute imeni S. M. Kirov

"Effect of Chromium on Phase Transformations and Strengthening of Type G13 and 30G10 Steels"

Abstract: A study was made of the effect of chromium (up to 16%) on the phase composition, martensite points, phase transformations, and strengthening during plastic deformation of unstable alloys (G13 and 30G10) which form both alpha- and epsilon-martensite. The steels were melted in an induction furnace and poured as blanks weighing 8 kg which were homogenized at 1200° C for 10 hours. After heat treating, the blanks were forged into rods which were austenitized at 1100° C (G13) and 1150° C (30G10) with subsequent water cooling. It was found that adding up to 16% Cr to 30G10 carbon steel significantly reduces the alpha-M_s point and degree of gamma-alpha transformation during cooling. Increased Cr content lowers the epsilon-M_s point and degree of gamma-epsilon transformation for both types of alloys. With a Cr content up to 16% in the 30G10 unstable austenitic
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USSR

steel, the resistance of austenite to formation of alpha-martensite is
increased under deformation. Stability of austenite to formation of
epsilon-martensite varies in a more complex relationship. An increase in
Cr content to 16% in steel G13, the structure of which is epsilon —+alpha+
gamma in the hardened state, leads to a lowering of the intensity of alpha-
martensite formation and the intensity of the epsilon-phase under plastic
deformation. In the investigated steels a transformation develops under
deformation by the system gamma→epsilon→alpha. The increase in Cr content
affects development of each of these types of transformations and, conse-
quently, affects the ratio of phases formed as a result of plastic deforma-
tion.

2/2

USSR

SHALABIN, G. V., EYSSNER, YU. N.

"Dynamic PERT Model of Optimal Distribution of Lumbering Enterprises"

V sb. Primeneniye mat. v ekon. (Application of Mathematics and Economics -- collection of works), Vyp. 7, Leningrad, Leningrad University, 1972, pp 120-130 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V542)

No abstract

1/1

Acc. Nr: АР0049805

Abstracting Service   **EYTINGON II**

CHEMICAL ABST. 5-70

Ref. Code:

UR0138

101609x Properties of rubbers from SKMS-30 ARKM-15 modified with plastic materials. Tyurina, V. S.; Shvarts, A. G.; Eitingon, I. I. (Nauch.-Issled. Inst. Shin. Prom., Moscow, USSR). Kauch. Rezina 1970, 29(1), 8-10 (Russ). The physico-mech. properties of SKMS-30 ARKM-15 (I) vulcanizates contg. 3-12% butadiene-styrene copolymer (Marbon 8000A), high-pressure polyethylene, low-pressure polyethylene (II), ethylene-propylene copolymer (III), isotactic polypropylene (IV), polyamide copolymer 548 (V), and poly(vinyl chloride) and the processability of carbon black-filled I mixts. were studied. Introduction of II, IV, and V to carbon black-filled I mixts. brought about a substantial increase in viscosity, tear strength, and 100% modulus, and reduced creep at high temps. III increased the values of all these properties. The reinforcing effect of II and IV in unfilled rubber depended on the m.p. of the cryst. phase and the vulcanization temp. Elastomers obtained at a temp. below the m.p. of the plastics exhibited superior 100% modulus, tensile strength, and tear strength.

CKJR

REEL/FRAME
19801727

7

1/2   018
TITLE--USE OF ALKYLPHENOL DISULFIDE FORMALDEHYDE RESIN PHENOPHOR BS-6 FOR
    VULCANIZING GENERAL PURPOSE RUBBERS -U-   PROCESSING DATE--23OCT70
AUTHOR-(02)-SHVARTS, A.G., EITINGON, I.I.

COUNTRY OF INFO--USSR   EYTINGON, I.I.

SOURCE--KAUCH. REZINA 1970, 29(3), 4-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PHENOL FORMALDEHYDE RESIN, VULCANIZATION, SULFUR, MECHANICAL
    STRENGTH, SYNTHETIC RUBBER/(U)SKD RUBBER, (U)SKI3 RUBBER, (U)EUROPRENE
    RUBBER, (U)PHENOPHOR B PHENOLIC RESIN, (U)PHENOPHOR BS6 PHENOLIC RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0451
                            STEP NO--UR/0138/70/029/003/0004/0007
CIRC ACCESSION NO--AP0119387
                    UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0119387   PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VULCANIZATION OF SYNTHETIC
RESINS (SKD, SKI-3, EUROPRENE) WITH PHENOPHOR BS-6 (I), INSTEAD OF S OR
COM. P,ALKYL,PHENOL,HCLHO RESIN PHENOPHOR B, GAVE VULCANIZATES OF
IMPROVED MECH. STRENGTH, MECH. STABILITY, AND RESISTANCE TOWARDS THERMAL
OXIDN. THE GREATEST STRENGTHENING EFFECT OF I WAS OBSD. FOR 1:1 SKD-BSK
RUBBER MIXES. THE RUBBER CONTG. I CAN BE BONDED TO S VULCANIZATES.
FACILITY: NAUCH.-ISSLED. INST. SHINNOI PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 632.95

LUZHNOVA, M. I., EYTINGON, L. M., and KUPRIYANOVA, A. S.

"Effect of Meturin on Processes of Oxygen Liberation in Photosynthesis"

Translation: In experiments with chloroplasts isolated from young oat
plants treated through the roots with meturin (I) (N-phenyl-N-hydroxy-N'-
methylurea), the Hill reaction was inhibited. In this respect compound I
was no different from monurone. In experiments with direct introduction
of the herbicide into a mixture containing photolytically active chloroplasts
from the leaves of peas, compound I and four other N-aryl-N-hydroxy-N'-methy-
lureas, in contrast to phenurone and monurone, caused practically no inhibition
of the Hill process. It is possible that I in plants is converted to com-
pounds which inhibit photolytic activity of chloroplasts.

1/1

USSR $\mathcal{E}$ UDC 617-001.17-092.9;616.42'

ETINGEN, L. YE., and EYTSEN, L. F., Department of Normal Anatomy, Therapy
Faculty, Tadzhik Medical Institute imeni Abu-Ali Ibn Sina, Dushanbe

"Vascular Changes in Some Endocrine Glands After Experimental Burn Shock"

Abstract: The blood vessels of the adrenal and thyroid glands and gonads in
dogs were examined after the animals were subjected to burns covering 20 to
25% of the body surface. The vascular system of the glands reacted to the
burn within hours in the form of severe circulatory disturbances, hyperemia
in particular. The arterial bed expanded due to enlargement of the diameter
of the arteries and appearance of numerous accessory connecting branches
which are collapsed at the ordinary level of functioning. The venous and
lymph beds also expanded as a result of dilatation of all the elements from
capillaries to large trunks. Venous and capillary stasis and thrombi in the
large veins were common. Hemorrhages were fairly frequent. The vascular
response to the trauma wasmost pronounced in the adrenals and thyroid. There
were some indications of increased thyroid function and decreased generative
function of the ovaries and testes.

1/1

USSR

EYURIY, Kh.

UDC 621.311.001.1

"Optimization of the Structure of Generating Facilities in the Planning of Combined Power Systems"

Tr. Mosk. Energ. In-ta [Works of Moscow Institute of Power Engineering], 1972, No 109, 159-169 (Translated from Referativnyy Zhurnal Elektrotekhnika i Energetika, No 9, 1972, Abstract No 9Yel03, by V. S. Emma)

Translation: A mathematical model is suggested for determination of the optimal structure of the generating facilities of a power system with fixed external connections for a five-year period. Simplified indicators are fixed for load graphs, as well as the basic technical and economic characteristics of existing power systems, power systems under construction and new power systems. The criterion for optimization is the minimum adjusted calculated expenditures for the power system and fuel for the calculation period, while observing the conditions of coverage of the balance of capacity and power production. The optimal composition of power system equipment and the number of hours of utilization of the capacity of power plants of each type are determined for each design year. The following types of power plants are used in the optimization calculations: gas turbine units, pumped-storage power plants, nuclear power plants and modular condensation power plants. Eight biblio. refs.

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USSR

EYVAZOV, A. R.

"Centralization and Decentralization in Computer Systems"

Translation: The paper deals with methods of organizing multi-computer systems to achieve reciprocally matched actions and operation of all computers in the system as a unit. A necessary condition for integrated operation of the system is exchange of information between individual computers relative to the problem being solved and the structure of the system. This paper classifies the set of possible messages which may be exchanged by the computers. Six modes of operation of a computer within the system are distinguished depending on the diversity of generated and required messages. Then on the basis of the modes in which the computers of the system have been set and the nature of data exchange between them, com-

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USSR

EYVAZOV, A. R., Tr. In-ta elektron. upravl. mashin, 1972,
vyp. 17, pp 13-26

puter systems are classified with respect to centralization
and decentralization of the computational process. The pos-
sible levels of organization of the system range from abso-
lutely centralized to absolutely decentralized systems.
Noting the advantages and disadvantages of each method of
organization, the author calls attention to the fact that
the problem of choosing the optimum level of centralization
has as yet been neither formulated nor solved. He then offers
two modifications of a decentralized computer system which can
be considered intermediate between absolutely centralized
and absolutely decentralized systems as regards method of or-
ganization. In conclusion it is suggested that it is just
such systems (in which only part of the functions are cen-
tralized) which will best meet the criteria for operation
encountered in practice.

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USSR

UDC 621.382:621.317.799

BEKERIS, E.P., ░░░░░░░░░ W.V.

"Measurement Of Noise Factor And Spectral Density Of Noise Of Semiconductor Devices In The Frequency Range 0.01--10Hz"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 3 (Proceedings Of The All-Union Scientific-Technical Conference On Radio Engineering Measurements. Vol. 3), Novosibirsk, 1970, pp 73-74 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B508)

Translation: A device is described for measurement of the noise factor and the spectral density of noise of semiconductor devices in the range of infralow frequencies (ILF). A block diagram is presented of a receiving device. The ILF signal, modulated with respect to amplitude by the noise voltage, is recorded on a magnetic tape. Reproduction at a speed n times as great makes it possible to increase by n times the frequency of the spectrum being measured. The results are presented of measurements of the noise factor of a Type 1T308 transistor with various coverings [pokrytiye]. 2 ill. 2 ref. V.S.

1/1

- 60 -

EZROKHI Kh. L.

Acc. Nr.: *AP0046776*

Ref. Code: *MR0113*

USSR

UDC 629.113.029:629.113.073

KOROTONOSHKO, N. I., Candidate of Technical Sciences, SHUKLIN, S. A., Candidate of Technical Sciences, and EZROKHI, KH. L., NAMI [Abbreviation unknown], Kremenchug Auto Plant

"Effect of Some Constructional Parameters on the Roadability of Full-Drive Automobiles"

Moscow, Avtomobil'naya Promyshlennost' (Motor Vehicle Industry), No 1, 1970, pp 13-15

Translation: Changes in the design of the three-axle motor vehicle KrAZ-255B considerably expanded the sphere of its efficient use in comparison with the motor vehicle KrAZ-214B. The four-axle design of the MAZ-05M motor vehicle ensured a decrease in axle weights, an increase in tractive potentialities of the motor, better roadability and enabled the obtaining of high speeds under different driving conditions. (3 tables, 3 biblio. ref.)

Reel/Frame
19790080

18 PN/

UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--CONDITIONS AND CHARACTER OF SYNCHRONIZATION OF ELECTRIC ACTIVITY OF
   TWO NEURONS BY MEANS OF AN ELECTRIC FIELD PRODUCED BY THESE NEURONS -U-
AUTHOR--EZROKHI, V.L.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIAY, 1970, VOL 2, NR 3, PP 321-328

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOELECTRIC PHENOMENON, NEURON, ELECTRIC FIELD, CRAYFISH,
   ALKALOID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1630   STEP NO--UR/0660/70/002/003/0321/0328

CIRC ACCESSION NO--AP0123470
                        UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123470

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS MADE OF THE ISOLATED PREPARATION OF THE STRETCH RECEPTOR OF THE MOULTING CRAYFISH. INTRACELLULAR RECORDS WERE TAKEN FROM THE SOMA OF THE FAST ADAPTING (FA) OR SLOWLY ADAPTING (SA) NEURONS AND EXTRACELLULAR ONES, FROM THE NERVE TRUNK. DURING PROLONGED ACTION POTENTIALS (PAP) IN BOTH THE FA AND SA NEURONS THE ACTIVITY INCREASED. THE RESULTS WERE SIMILAR FOR PAP CREATED BY MEANS OF STRYCHNINE OR NOVOCAIN APPLICATION OR THE DAMAGE OF THE SOMA MEMBRANE AND EVOKED ORTHODROMICALLY AS WELL AS ANTIDROMICALLY. IN CASE OF APPROXIMATELY EQUAL FREQUENCY OF SA AND FA NEURONS ACTIVITY, AFTER THE PERIOD OF ITS INCREASE IN THE LATTER DURING THE SA NEURON PAP PLATEAU, THEIR DISCHARGES BECAME ABSOLUTELY SYNCHRONIZED. PAP OF ONE NEURON AND ONE OR SEVERAL IMPULSES OF THE OTHER CELL AS WELL AS PAP OF BOTH ENURONS MAY BE SYNCHRONIZED. THE EFFECTS DESCRIBED ARE SUPPOSED TO BE DUE TO THE ELECTRIC FIELD PRODUCED DURING PAP. THE SIGNIFICANCE OF THE SYNCHRONIZING ELECTRIC FIELD ACTION FOR THE EPILEPTOGENIC FOCUS NEURONS BEING AT A SIMILAR FUNCTION STATE IS DISCUSSED IN CONNECTION WITH THE OBTAINED RESULTS.   FACILITY: INSTITUTE OF HIGHER NERVOUS ACTIVITY AND NEUROPHYSIOLOGY.   FACILITY: ACADEMY OF SCIENCES, USSR, MOSCOW.

UDC: 621.791.947.55:546.212(260)

USSR

BEYDER, B. D., Candidate of Technical Sciences, PROSVIRIN, A. P., Engineer, EZROKHIN, A. B., Engineer, and UZILEVSKIY, YU. A., Engineer

"Plasma-Arc Cutting in Sea Water"

Moscow, Svarochnoye Proizvodstvo, No 6, Jun 73, pp 52-53

Abstract: The authors determine the requirements for a plasma cutting torch which can work in sea water. A cutting torch is tested which can ensure the reliable parting of hull grades of steel up to 40mm thick in sea water with a salinity of 20 percent at a depth of 10m. The cutting is done at a current of 500-520amp and an arc voltage of 120-140v. The cutting rate of the plasma-arc is 2-5 times greater and the productivity is 3-8.5 times greater than is the case with electro-oxygen cutting.

1/1

USSR

FABELINSKIY, I. L., Professor, Doctor of Physical and Mathematical Sciences,
Physics Institute imeni P. N. Lebedev, Soviet Academy of Sciences

UDC 531.751

"How High-Speed Processes are Studied"

Abstract: The author discusses the basic principle of new optical methods
of investigating high-speed processes by using ultrafast high-intensity
light pulses. It is shown how the relation between anisotropy relaxation
time and the width of a spectral line can be used as an indirect standard
of comparison for measuring times on the order of 10^{-13}.. 10^{-14} sec and
shorter. The disadvantages of this method are pointed out. The new
direct measurement methods which overcome the disadvantages of the indirect
method are subdivided into two types: 1. those in which two crossed or
parallel light pulses are used one of which induces the effect to be
studied, while the other acts as a measurement probe; 2. those in which
an intense light pulse induces the Kerr effect in a cell to create an
ultrafast shutter. The applications and limitations of various modifica-
tions of these methods are examined.

1/1

USSR

FABELINSKIY, I. L., Physics Institute imeni P. N. Lebedev, Academy of Sciences
USSR

UDC 535

"New Optical Methods of Studying High-Speed Processes"

Moscow, Uspekhi Fizicheskikh Nauk, Vol. 104, No 1, May 71, pp 77-94

Abstract: New methods of the direct measurement of time and the study of the
kinetics of high-speed processes in the nanosecond and picosecond range that
have been developed in the last 2-3 years are surveyed. The new methods are
divided into two types: (1) methods in which two crossed or colinear light
pulses are used, one of which is intense and causes the phenomenon to be
studied and the other of which is a weak pulse of the same or different dura-
tion and wavelength and serves as a probe of the phenomenon at different times
in its development; (2) a method in which two light pulses are also used, where
the intense pulse causes a high-frequency Kerr effect in a cell (for example,
with carbon bisulfide) and if this pulse is short (for example, of picosecond
duration), it creates a superfast optical shutter; the weak pulse, which can
also be of the same or different wavelength and duration, can carry informa-
tion on rapidly developing phenomena and be recorded at different phases of
the development of the phenomenon by picosecond exposures. Requirements on
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USSR

FABELINSKIY, I. L., Uspekhi Fizicheskikh Nauk, Vol. 104, No 1, May 71, pp 77-94

the intensity of the low-power beam are only that the phenomenon can be recorded during the exposure time and that the light not cause nonlinear effects. The new methods are applied for studying and measuring such phenomena as the time of radiationless transitions, the time of illumination and restoration of absorption in saturating solutions, the time of fluorescence damping, the lifetime of phonons in crystals at various temperatures, and the kinetics of the development of a plasma arising in a focused pulse of intense light.

2/2

USSR

UDC 621.375.82

STARUNOV, V. S., FABELINSKIY, I. L.

"Thermal and Induced Molecular Scattering of Light"

V sb. Sovrem. probl. fiz. khimii (Modern Problems of Chemical Physics -- Collection of Works), Vol. 5, Moscow, Moscow University, 1970, pp 174-203 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D993)

Translation: A survey is presented covering studies of thermal and induced molecular scattering of light. 79 ref.

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PHYSICS

Acoustics

USSR

SABIROV, L. M., STARUNOV, V. S., and FABELINSKIY, I. L., Physics Institute
imeni P. N. Lebedev, USSR Academy of Sciences

"Determining the Velocity and Absorption of Hypersound in Viscous Liquids
From Scattered-Light Spectra"

Abstract: Using gas lasers, either with an Ne-He mixture, lambda = 6328 Å
(40 mw), or a He-Cd^{114} mixture, lambda = 4416 Å (20 mw), and working in a
multimode operation to excite scattered light, the authors experimentally
studied the fine structure of the extremities of the Rayleigh line in salol
and benzophenone, with the viscosities varying by many orders of magnitude.
The phenomenon of the fine structure of the extremities of the Rayleigh line
results from the fact that a doublet is observed in the spectra of depola-
rized scattered light under specific conditions. The velocity and absorp-
tivity of longitudinal hypersound were determined in salol, benzophenone,
and triacetate over a broad viscosity range. Two branches of transverse
hypersound oscillations in liquids were observed -- low temperature ("normal"),
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USSR

in which the transverse components in the scattered-light spectra are shifted with decrease in temperature, and the high-temperature ("anomalous") branch, in which these components draw closer together with temperature decrease. The temperature range used was -65 to +137° C. The theory that the scattering of anisotropy fluctuations is characterized by two relaxation times most fully explains the experimental findings.

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USSR

FABELINSKIY, I. L. (Lebedev Physics Institute, USSR Academy of Sciences)

"Interaction of Light and Sound"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, May 1971, pp 874-882

Abstract: A short review of the interaction of light with longitudinal and transverse hypersonic waves in thermal and Mandelstam-Brillouin scattering is given. Questions of the conversion of the energy of two intensive light beams, different in frequency, into the energy of a sound wave are considered. The conversion of short pulses of light into sound energy of hypersonic frequencies is considered briefly.

The article includes 10 equations and 3 figures. Figure 1 shows the curve for the dependence of α/f^2 on the frequency f in benzene. Figure 2 shows the curve for the dependence of the speed of ultrasound and hypersound in triacetin. Figure 3 shows the curve for the dependence of the distance between components of a "transverse" $2\Delta\nu_{max}$ doublet on temperature in Salol.

There are 34 bibliographic references.
1/1

TITLE--INDUCED ENTROPY, TEMPERATURE, SCATTERING OF LIGHT IN LIQUIDS -U-

AUTHOR-(03)-KYZYLASOV, YU.I., STARUNOV, V.S., FABELINSKIY, I.L.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(2), 110-13

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ENTROPY, LIGHT SCATTERING, BENZENE, ETHANOL, RUBY LASER, FABRY
  PEROT INTERFEROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0998   STEP NO--UR/0386/70/011/002/0110/0113

CIRC ACCESSION NO--AP0115019
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0115019
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STOKES SHIFTED LINE OF INDUCED
  ENTROPY SCATTERING OF LIGHT WAS OBSD. IN LIQS.; THE SCATTERING WAS
  CAUSED BY THE ELECTROCALORIC EFFECT. THIS SCATTERING WAS EXCITED IN C
  SUB6 H SUB6 AND ETOH BY A LIGHT PULSE (10-15 NSEC) OF A RUBY LASER (MAX.
  OUTPUT SIMILAR TO 180 MW, LINE WIDTH 2-3 TIMES 10 PRIME NEGATIVE2 CM
  PRIME NEGATIVE1). THE LIGHT, SCATTERED UNDER AN ANGLE OF 90DEGREES, WAS
  ANALYZED BY A FABRI-PEROT INTERFEROMETER. THE STOKES SHIFTS WERE OF
  SIMILAR TO 10 PRIME NEGATIVE2 CM PRIME NEGATIVE1. BY ADDING AN
  ABSORBENT TO THE LIQS., AN ANTI STOKES SHIFTED LINE OF INDUCED TEMP.
  SCATTERING OCCURRED. AT HIGH ABSORPTIVITIES AND INTENSITIES OF
  EXCITING RADIATION, THE ANTI STOKES SHIFT WAS SEVERAL TIMES HIGHER THAN
  THE STOKES ONE. IN THE CASE OF C SUB6 H SUB6, THE STOKES AND ANTI
  STOKES (OWING TO THE EFFECT OF NONLINEAR LIGHT ABSORPTION) SHIFTS WERE
  OBSD. AT THE OUTPUTS OF SIMILAR TO 50-80 AND LARGER THAN 80 MW, RESP.
      FACILITY: FIZ. INST., IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

TITLE--STIMULATED ENTROPY TEMPERATURE SCATTERING OF LIGHT IN LIQUIDS -U-

AUTHOR-(04)-KYZYLASOV, YU.P., STARUNOV, V.S., FABELINSKIY, I.L., LEBEDEV,
   P.N.
COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 2, P. 110-13 (JAN. 1970)

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT SCATTERING, ENTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1090   STEP NO--US/0000/70/011/002/0110/0113

CIRC ACCESSION NO--AP0136510
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0136510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATIONS HAVE SHOWN THAT
  STIMULATED (ENTROPY) SCATTERING OF LIGHT (STS) CAN BE DUE TO TWO
  DIFFERENT CAUSES. IT FOLLOWS FROM A GENERAL ANALYSIS OF THE STS
  PHENOMENON THAT THE STS LINE DUE TO THE ELECTROCALORIC EFFECT SHOULD BE
  SHIFTED TO THE STOKES SIDE RELATIVE TO THE FREQUENCY OF THE EXCITING
  RADIATION (STS-I), AND THE STS LINE DUE TO THE DIRECT ABSORPTION OF
  LIGHT SHOULD HAVE AN ANTI STOKES SHIFT (STS-II). THE AUTHORS REPORT
  HERE THE FIRST OBSERVATION OF THE STS-I LINE IN LIQUIDS, WITH AN
  INTENSITY MAXIMUM SHIFTED IN THE STOKES DIRECTION RELATIVE TO THE
  FREQUENCY OF THE EXCITING RADIATION. THEY HAVE THUS OBSERVED THE STS
  DUE TO THE ELECTROCALORIC EFFECT. IN THERMAL (SPONTANEOUS) SCATTERING,
  THIS FORM OF STS CORRESPONDS TO SCATTERING OF LIGHT BY ENTROPY
  FLUCTUATIONS.   FACILITY: USSR ACAD. SCIS.

UNCLASSIFIED

TITLE--SYNTHESIS OF ALIPHATIC AMINO ACIOS FROM THIOPHENE DERIVATIVES. XII.
   PREPARATION OF 2,OXOIMIDAZOLIDINE DERIVATIVES FROM DIAMINOMONOCARBOXYLIC
AUTHOR-(04)-FABRICHNYY, B.P., SHALAVINA, I.F., KOSTROVA, S.M., GOLDFARB,
   YA.L.
COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1091-100

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, AMINO ACID DERIVATIVE, THIOPHENE, LACTAM,
   NITRATION, CHLORINATED ORGANIC COMPOUND, UREA, SAPONIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1350   STEP NO--UR/0366/70/006/005/1091/1100

CIRC ACCESSION NO--AP0135024
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0135024
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NITRATION OF 5,(5,CHLORO,
 3,AMINO,2,THIENYL)VALERIC ACID DELTA-LACTAM (I) WITH KNO SUB3 IN OLEUM
 NITRATED THE THIOPHENE RING IN THE 4,POSITION; HYDROGENOLYSIS OF THE
 PRODUCT OVER NI GAVE 7,8,DIAMINONONANOIC ACID ZETA-LACTAM.   SAPON. OF
 THIS GAVE MECH(NH SUB2 .HCL)CH(NH SUB2 .HCL)(CH SUB2) SUB5 CO SUB2 H.
 REACTION OF THIS WITH UREA IN NA SUB2 CO SUB3 SOLN. GAVE 4,(5,
 METHYLIMIDAZOL,2,ON,4,YL)CAPROIC ACID.   SIMILARLY, 5,(5,(R-SUBSTITUTED),
 IMIDAZOL,2,ON,4,YL)CAPROIC ACIDS (R IS ME, ET, PR, BU, AMYL, ISOAMYL, OR
 N-HEPTYL) WERE PREPD.   FACILITY: INST. ORG. KHIM. IM.
 ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.317.761(088.8)

NALBANDOVA, Z. A., TARASOVA, M. M., FABRIK, M. A.

"Frequency Meter"

USSR Author's Certificate No 251029, Filed 20 Aug 66, Published 11 Feb 70 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A385 P)

Translation: This author's certificate introduces a frequency meter containing a pulse counter connected via a switch to the inputs of the standard and measured frequency meter. The frequency meter is distinguished by the fact that uniqueness of the reading is insured in it with a multiple ratio of the standard and measured frequencies. For this purpose, a frequency divider is included between the input of the measured frequency meter and the switching device. An auxiliary pulse counter with a capacitance equal to the division coefficient of the frequency divider is connected to the input of the pulse counter. Before the measurement, the auxiliary pulse counter is set to a number equal to half of its capacity.

1/1

FABRIKA, L.P.

machines

STUDY OF COLLISIONS OF MACHINE ELEMENTS ON THE BASIS OF PHENOMENOLOGICAL MODELS OF INELASTIC THEORY

A. N. Levskiy, V. N. Loboda and L. P. Fabrika (Dnepropetrovsk)

The experience gained in application of analog models for determination of the force modes of operation of elements of heavy machines in the mining and metallurgical industry is discussed. The general problems involved in the statement and solution of the problem of determining impact parameters (duration, magnitude and form of impact pulse, impact energy, coefficient of restitution), as well as problems of determining the dynamic results of impact loads between the elastic links of machines resulting from impact interaction of masses are presented. A method is described for determining areas of stability of periodic modes of motion of impact and vibration-impact systems using analog models.

A generalized model for substitution of an elementary volume of a medium is suggested. The colliding bodies are considered as consisting of a set of elementary volumes. Each elementary volume and its coupling to neighboring volumes are replaced by a rheological model, the properties of which are determined by the properties of the material of the colliding bodies. Rheological models of viscoelastic, elastic-plastic and viscoelastic-plastic media are studied. It is demonstrated that these models describe the properties of structural materials used in machine building sufficiently completely (for purposes of modeling of collisions).

The characteristics of the substitution models are calculated or determined on the basis of results of static and dynamic tests of materials.

The mathematical models suggested describe the collisions of bodies, the period of natural oscillations of which is short in comparison to the duration of the collisions. The use of the models suggested for the study of collisions of machine elements is justified.

Examples are presented of modeling concrete impact and vibration-impact systems: a vertical vibration transporter, an unbalanced rotor, rotating in a bearing without lubrication, and a Geneva mechanism. The results of modeling are compared with precise analytic solutions.

USSR   UDC 517.948

FABRIKANT, V. I.

"Closed Solution of a Two-Dimensional Integral Equation"

Kazan', Izvestiya Vysshikh Uchyebnykh Zavedeniy, Matematika,
No 2, Feb 71, pp 102-104

Abstract: In this article a special procedure is used to obtain
the exact solution in closed form for an integral equation of
the type

$$\int_0^a \int_0^{2\pi} \frac{F(\rho_0,\phi_0)\rho_0 d\rho_0 d\phi_0}{[\rho^2 + \rho_0^2 - 2\rho\rho_0\cos(\phi-\phi_0)]^{(1+\nu)/2}} = f(\rho,\phi) \quad (0 \leq \rho \leq a, 0 \leq \phi \leq 2\pi),$$

where $0 < \nu < 1$ and $f(\rho,\phi)$ is a given function. Abelian and
L-operators, by means of which the solution can be simplified,
are introduced. The example of an inclined circular punch with
a flat base in an inhomogeneous half space is considered.

1/1

USSR   UDC 539.184.52

MALAKHOV, YU. I., FABRIKANT, V. A.

"Measuring the Lifetime of KrII Levels by the Methods of Electron Optical Chrono-
graphy"

Abstract: Results are presented from measuring the lifetime of KrII levels in
the nanosecond range by the method of electron optical chronography. The
experimental setup is described, and an error analysis is made. The measure-
ment conditions are as follows: duration of the exciting electron beam $5 \cdot 10^{-9}$
seconds, cutoff time $\tau_c = 1.5 \cdot 10^{-9}$ seconds, current density per pulse $j_u = 2$
milliamps/cm^2, krypton pressure in the electron tube $4 \cdot 10^{-3}$ torr. A standard
image converter tube recording of the weak line obtained in the single fire
mode is presented. The measurement results are tabulated. An increase in the
current density j_u to 15 milliamps/cm^2 and the pressure to $4 \cdot 10^{-2}$ torr has no
effect on the measured value of τ. The intensity of the spectral lines in this
case depends linearly on the given parameters, indicating the absence of
quenching collisions. Variation of the energy of the exciting beam from 13
to 25 electron volts also has no effect of τ. The construction of the
extinguishing curves for the measured lines on a semilogarithmic scale gives
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USSR

straight lines. The extinguishing section from 0.9 to 0.2 of the total signal
amplitude was analyzed. Measurements of the lifetime of the $5_p{}^2D^0$ level

with respect to damping of the intensity of the two lines $\lambda_1 = 4098$ Å and

$\lambda_2 = 4945$ Å indicate reliability of the results.

2/2

1/2   020   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--ACTION OF A CONCENTRATED FORCE ON A TRANSVERSELY ISOTROPIC BODY -U-

AUTHOR--FABRIKANT, V.I.

COUNTRY OF INFO--USSR

SOURCE--MASHINOSTROENIE, NO. 3, 1970, P. 9-12

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, PHYSICS

TOPIC TAGS--TRANSVERSE FLOW, INTERMOLECULAR FORCE, BOUNDARY LAYER PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0864   STEP NO--UR/0418/70/000/003/0009/0012

CIRC ACCESSION NO--AP0131451
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0131451

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE PROBLEM OF THE
ACTION OF AN ARBITRARY CONCENTRATED FORCE INSIDE A TRANSVERSELY
ISOTROPIC HALF SPACE. A SOLUTION TO THE PROBLEM IS OBTAINED BY THE
MIRROR IMAGE METHOD, WITH THE AID OF SOLUTIONS TO THE AUXILIARY PROBLEMS
CONCERNING THE ACTION OF A CONCENTRATED FORCE IN A SPACE AND THE ACTION
OF AN ARBITRARY FORCE ON THE BOUNDARY OF A TRANSVERSELY ISOTROPIC HALF
SPACE.

UNCLASSIFIED

ELECTRICAL ENGINEERING

Circuit Elements

FABRIKANT, V.L., Dr.Technical Sciences, Professor [Riga   Polytechnical Institute]

"Use Of Semiconductors In Protective Relaying And Automatic Devices Of Energy Systems"

Abstract: The requirements on protective relaying and automatic devices of energy systems are studied and it is concluded that these requirements cannot be fully satisfied on the basis of electromechanical relays and semiconductor devices must be used. A number of methods are proposed for fulfillment of both the measuring elements and the logical part of relaying and automatic devices. The principal unsolved problems connected with the use of semiconductors are described. 10 fig. 31 ref. Received 6 Dec 1971.

1/1

TITLE--THE UNIVERSAL LONGITUDINAL DIFFERENTIAL PROTECTION OF SHORT
   OVERHEAD LINES -U-

AUTHOR-(04)-MEZHALS, L.V., OREKHOV, L.A., FABRIKANT, V.L., SMIRNOVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ELEKTRICHESTVO, NO 3, 1970, PP 22-26

DATE PUBLISHED------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--TRANSMISSION LINE, OVERVOLTAGE, CIRCIUT BREAKER, PROTECTIVE
   EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1198   STEP NO--UR/0105/70/000/003/0022/0026

CIRC ACCESSION NO--AP0123166
                         UNCLASSIFIED

CIRC ACCESSION NC--AP0123166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION AND DIAGRAMS ARE
GIVEN OF LONGITUDINAL DIFFERENTIAL PROTECTION SUITABLE BOTH FOR TWO
TERMINAL OVERHEAD LINES (OL) OAND FOR OL WITH BRANCH LINES. THE
PROTECTION IS ACCOMPLISHED BY A SCHEME WITH CIRUCLATING CURRENTS AND HAS
LINEAR CHARACTERISTICS AT EXTERNAL SHORT CIRCUITS. UPON SHORT CIRCUITS
IN THE ZONE THE MAXIMUM VOLTAGE ON AUXILIARY OCNDUTORS IS LIMITED.
RESTRAINT, INTRODUCED INTO PROTECTION SCHEMES, IS PROPORTIONAL TO THE
CURRENT OF ITS TERMINAL ON OL. TO PREVENT SPURIOUS OPERATION IN THE
CASE WHEN THE CURRENT AT ONE TERMINAL OF THE OL IS LOW OR EQUALS ZERO,
BLOCKING IS APPLIED, ACTING THROUGH A DEVICE OF THE GOOD WORKING ORDER
CONTROL OF THE AUXILIARY CCNDUCTORS.

UNCLASSIFIED

USSR   UDC: 621.391.837.32:681.84.083.84

NOZDRIN, V. V., PAN'SHIN, I. A., PODPALYY, Ye. A., STEPANOV, B. M., FABRI-
KOV, V. A., All-Union Scientific Research Institute of Opticophysical
Measurements

"A Method of Increasing Contrast in Recording Optical Images on Strip-Domain
Magnetic Tape"

Abstract: A method is described for increasing image contrast in thermal
video recording on strip-domain magnetic tape. Before recording, the mag-
netic structure of the tape is oriented by an alternating magnetic field
with amplitude exceeding the saturation field applied in the plane of the
tape. The recording (domain-rotation) field is then applied perpendicular
to the orientation of the initial domains. The film is heated by 0.03 μs
neodymium laser pulses. As a result, the domain structure is rotated
through an angle proportional to the density of the irradiation energy.
Contrast at low intensity is increased by an order of magnitude over con-
ventional recording methods.

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Photographic

YEGOROV, YU. P., PAN'SHIN, I. A., STEPANOV, B. M., FABRIKOV, V. A.

"Photography on Magnetic Films of Large Size"

Abstract: An experimental study to test the possibility of recording an optical
image of dimensions 50×50 mm^2 by low intensity light pulses (10^{-7} sec) on a
magnetic film with a band domain structure are described. The possibility of
applying thin ferromagnetic films with a band domain structure to photograph
objects in a pulsed irradiation regime was shown in 1969. Radiant energy
scattered from the surface of the object to be photographed is recorded by
the magnetic film in the form of the distribution of angles of rotation of
the domains in segments of the film with a different degree of irradiation.
Nonselectivity of the magnetic films to the radiation wavelength in the thermal
recording method makes it possible to record images over a wide spectral range,
including the infrared, and the sensitivity over this whole range is comparable

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USSR

to the sensitivity of photographic films. In the 1969 study recordings were
made on an iron-nickel film of dimensions 15 × 15 mm^2. The light source was
a neodymium glass laser in the free generation regime with a pulse length of
1 msec and the image was visualized by a magnetic colloid. For practical
purposes it was of great interest to increase the dimensions of the recorded
image and to decrease the exposure time. A special technique to keep the
composition of the iron-nickel alloy constant over the entire surface of the
glass substrate was developed that kept the deviation of the composition in
the magnetic film from the composition of the initial alloy less than 0.2%.
To reduce exposure time a method of sequential recording of individual sec-
tions of the image was applied, the boundaries of which overlapped. The
rated heat diffusion from the exposed segments was large in comparison with
the repetition rate of the pulses and therefore the cumulative effect on the
overlapping sections of the film was eliminated. A photograph is given show-
ing the image on a 50 × 50 mm^2 film.

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Precision Mechanical & Optical

KURSHIN, A. D., PANSHYN, I. A. and FABRIKOV, V. A., All-Union Scientific
Research Institute of Opticophysical Measurements

"Utilization of Brightness Hysteresis for Recording Images on Ferromagnetic
Film"

Abstract: A method for recording images on ferromagnetic film is described,
in which the azimuthal angle and the diffraction angle do not change and the
image is obtained due to different intensity of the diffracted illumination
on illuminated and unilluminated sectors. The new method is based upon the
hysteresis nature of the relationship of diffracted-radiation intensity to a
normal magnetic field. The hysteresis is manifested in the change of dif-
fraction intensity after the action of a normal field upon a film with band
domains. This change of diffraction intensity, brought about by the normal
magnetic field, can be "photographed" by heating the film. This forms the
basis of the new recording mechanism by means of which the image is fixed on
the film in the form of sectors with different diffraction intensities. Pulse
laser radiation is used to obtain the image. The sensitivity of this recording
1/2

USSR

KURSHIN, A. D., et al., Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinema-
tografii, Vol 17, No 3, 1972, pp 219-220

method has been experimentally evaluated at 0.1 joule/cm^2. The unit of
resolution is expected to be commensurable with the width of the band domains
(0.5 mu). 1 figure. 3 references.

2/2

1.

USSR   UDC 538.573.001.5

KLYUKIN, L.M., MAKSIMOV, V.I., STEPANOV, B.M., FABRIKOV, V.A., SHEVCHUK, E.N.

"Registration Of The Structure Of Microwave Radiation On Magnetic Film"

Abstract: The thermal method of recording radiation on thin magnetic film
with strip domains described previously in two papers by L.M. Klyukin and
others was used for registration of the structure of microwave radiation. The
scheme of the device used for recording microwave radiation on magnetic film
and a block diagram of the experimental equipment used for registration are
shown and described. The authors thank V.P. Kuznetsov for assistance in con-
ducting the experiment. 3 fig. 2 ref. Received by editors, 7 June 1971.

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1/2   033   UNCLASSIFIED   PROCESSING DATE--27NOV7(
TITLE--CONSERVATISM OF THE BOUNDARIES AND TEMPERATURE EFFECTS IN FILMS
   WITH BANDED DOMAINS WHEN RECORDING AN OPTICAL IMAGE ON THESE -U-
AUTHOR-(03)-PANSHIN, I.A., PODPALYY, YE.A., FABRIKOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 439-441

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--FERROMAGNETIC FILM, MAGNETIC DOMAIN STRUCTURE, GRAIN BOUNDARY,
   OPTIC IMAGE, MAGNETIC MOMENT, THERMAL EFFECT, MAGNETIC RECORDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1823   STEP NO--UR/0126/70/029/002/0439/0441

CIRC ACCESSION NO--AP0129101
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0129191   UNCLASSIFIED   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THERMAL EFFECTS ASSOCIATED WITH THE CONSERVATISM OF THE GRAIN BOUNDARIES IN MAGNETIC FILMS WITH BANDED DOMAINS USED TO RECORD OPTICAL IMAGES ARE DISCUSSED THEORETICALLY AND IN THE LIGHT OF PRACTICAL EXPERIENCE.   THE MAGNETIC MOMENTS IN THESE FILMS ARE SUBJECT TO SEVERE 'FRICTIONAL' FORCES AND MAY ACCORDINGLY TAKE UP NON EQUILIBRIUM POSITIONS, SUBSEQUENTLY EXPRESSED IN THE FORM OF THERMAL EFFECTS. THE PRACTICAL IMPORTANCE OF THESE AND ANALOGOUS FEATURES IN IMAGE RECORDING ARE CONSIDERED.

UNCLASSIFIED

FABRIKOV, V.A.

RECORDING THE STRUCTURE OF LASER RADIATION IN THE 10.6 - MICRON RANGE ON THIN MAGNETIC FILM

BY

L.M. KLYUKIN, B.E. STEPANOV, V.A. FABRIKOV, I.A. KHRIPCHENKO, E.A. CHERNOV AND B.R. SHVARTSMAN

Translated (September 1972) from the Russian Registratsiya struktury lazernogo izlucheniya v diapazone 10,6 u na tonkoi magnitnoi plenke. Zh. nauchn. i prikl. fotogr. i kinematogr., No. 5 (.971), pp. 369-370.

Translated from Russian by

adisTRANSLATIONS International

University of California
Lawrence Livermore Laboratory
Livermore, California

FABRIKOV V A

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TECHNICAL TRANSLATION

FSTC-HT-23-2015-72

29 Aud 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHII INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: L. A. DERVUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACSI

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attempt has been made to verify the accuracy of any statement contained herein. This
translation is published with a minimum of copy editing and graphics preparation in order
to expedite the dissemination of information.

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Metrology, Surveying, Graphics, Mapping

USSR   UDC 533.27

FABRY, L. P., PISTUN, Ye. P.

"Calculation of Static Characteristics of Pneumatic Choke Convertors of Physical and Chemical Parameters of Gases"

Kontrol'no-izmerit. Tekhnika. Resp. Mezhved. Nauch.-Tekhn. sb. [Testing and Measuring Equipment, Republic Interdepartmental Scientific and Technical Collection], 1971, No 11, pp 129-135, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.685).

Translation: A method is studied for designing pneumatic turbulent-laminar, laminar-turbulent and turbulent choke convertor-receivers for measurement of the physical and chemical parameters of gases. The tabulated function

$$\psi(\beta) = \sqrt{\frac{2}{x-1}(\beta^{\frac{2}{x}} - \beta^{\frac{x-1}{x}})},$$

is calculated by computer for various values of x with an interval of 0.05. 1 Table; 3 Biblio. Refs.

1/1

TITLE--MOLECULAR MOTION IN POLYURETHANE SURFACE LAYERS -U-

AUTHOR-(02)-FABULYAK, F.G., LIPATOV, YU.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 738-52

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PROTON, SPIN LATTICE RELAXATION, DIELECTRIC PROPERTY,
  POLYURETHANE RESIN, ETHYLENE GLYCOL, ADIPATE, POLYETHER RESIN, POLYESTER
  RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0727   STEP NO--UR/0459/70/012/004/0738/0752

CIRC ACCESSION NO--AP0136166
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0136166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROTON SPIN LATTICE AND DIELEC.
RELAXATION OF POLYURETHANES (I) (PREPD. FROM DIETHYLENE GLYCOL ADIPATE
AND TOLYLENE DIISOCYANATE, CROSSLINKED POLYETHER (II) OR CROSSLINKED
POLYESTER (III)) INDICATED ONLY ONE TYPE OF RELAXATION, BUT THE MOBILITY
OF III SEGMENTS ESCEEDED THAT OF II SEGMENTS. A SHIFT OF RELAXATION
MIN. AND DIELEC. LOSS FACTOR MAX. TOWARD HIGHER TEMPS. WAS OBSD. IN I
FILLED WITH FINELY DIVIDED AEROSIL (IV). THE ACTIVATION ENERGIES OF
SPIN LATTIC AND DIELEC. RELAXATIONS INCREASED IN THE SURFACE LAYERS OF
I. THE DISTRIBUTION PARAMETER OF RELAXATION TIME SPECTRA (CALCD. FROM
CIRCULAR K. S. AND R. H. COLE'S DIAGRAMS) SUGGESTED THAT THE RELAXATION
SPECTRA WIDENED IN IV MODIFIED I. THE CHANGE IN MOL. MOBILITY AT THE
INTERFACE WAS PRIMARILY DETD. BY A DECREASE IN THE NO. OF POSSIBLE
CONFORMATIONS RATHER THAN BY WHETHER THE POLYMER REACTED ENERGETICALLY
WITH THE SURFACE OR NOT.   FACILITY: INST. KHIM. VYSOKOMOL.
SOEDIN., KIEV, USSR.

USSR   UDC: 621.165-226-758.3

KIRILLOV, I. I., FADDEYEV, I. P., AMELYUSHKIN, V. N., KOTOV, Yu. V., VOLCH-
KOV, V. I., RADIK, S. V., Leningrad "Order of Lenin" Polytechnical Insti-
tute imeni M. I. Kalinin

"A Moisture Collector"

Translation: This Author's Certificate introduces: 1. A moisture col-
lector designed chiefly for a wet vapor turbine. The device contains
collector chambers with drain channels installed in the body of a dia-
phragm over the hub of the working wheel. As a distinguishing feature
of the patent, the efficiency of moisture extraction is increased by
making the chambers in the form of annular grooves one over the other.
The upper groove is connected by slits to the flow part on the vapor in-
jection side, and the hub is tapered with increasing diameter in the path
of the vapor with an annular projection at maximum diameter to throw the

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USSR

KIRILLOV, I. I. et al., USSR Author's Certificate No 332244

moisture into the lower chamber. 2. A modification of this moisture col-
lector distinguished by the fact that moisture-catching troughs are pro-
vided in the lower chamber.
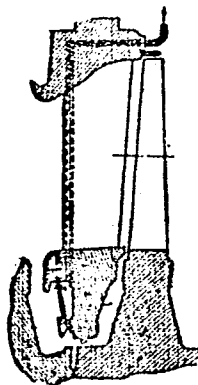
2/2

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1/2   008   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--MASSLESS AND MASSIVE YANG MILLS FIELD -U-

AUTHOR-(02)-SLAVNOV, A.A., FADDEYEV, L.D.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 1, PP
18-23
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FIELD THEORY, S MATRIX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1022   STEP NO--UR/0646/70/003/001/0018/0023

CIRC ACCESSION NO--AP0130057
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0130057
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATIONSHIP BETWEEN THE
MASSLESS AND MASSIVE YANG MILLS THEORIES IS DISCUSSED. IT IS SHOWN THAT
THE MASSIVE THEORY S MATRIX IN THE LIMIT M YIELDS 0 DOES NOT TURN INTO
THE MASSLESS THEORY S MATRIX UNLIKE THE CASE OF THE ABELIAN GAUGE GROUP.
      FACILITY: MATEMICHESKIY INSTITUT IM. V. A. STEKLOVA AKADEMII
NAUK SSSR.

UNCLASSIFIED

USSR   UDC: 621.396.677(088.8)

KLYUYEV, O. L., TEREKHOV, V. M., FADDEYEV, V. Ye., SHOFLER, L. V.

"Drive Mechanism for a Ground-Based Antenna System"

Translation: This Author's Certificate introduces a drive mechanism for
a ground-based antenna system. The mechanism contains a DC force converter,
an even number of actuating motors, high-speed and low-speed gear boxes,
and crown gears connected to the drive gears. To improve the rigidity of
the gear train and simplify the construction of the mechanism, the converter
is connected between the common point of the actuating motor armatures
and the common point of two power diodes which are connected in series in
the same direction in the armature circuits of the same motors. An ad-
ditional DC source is connected in parallel with these diodes through an
auxiliary diode.

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USSR

FADDEYEVA, M. I., BASKAKOV, YU. A., BOBYLEVA, S. S., ASTAF'YEVA, L. S.,

"Synthetic Method for Hydantoin Derivatives"

USSR Author's Certificate No 364611, filed 22 Jun 70, published 27 Feb 73
(from RZh-Khimiya, No 19, Oct 73, Abstract No 19N582P)

Translation: Hydantoin derivatives (I) of the series RNCON(R')COCXR"
(R,R',R" = acryl or alkyl; X = S or O) are obtained by the reaction of
respective 6-Cl-I with the R"XH type compound in presence of HCl (gas)
acceptor. 2.59 g of 1,3'-ClC$_6$H$_4$-3-Me-5Cl-I dissolved in 50 ml alcohol is
refluxed for 7-8 hrs and evaporated yielding 2.62 g II (R = 3'ClC$_6$H$_4$, R' =
Me, R" = Et, X = O), m.p. 63-65° (petr. ether). Analogously II are obtained
(R, R', R", X, yield in %, m.p. in °C being reported): Ph, Me, Me, O, 97.8,
58-60 (petr. ether); Ph, Me, Et, O, 96.8, 98-100 (petr. ether); Ph, Me,
m-ClC$_6$H$_4$, O, 82.1, 120-2 (alc); Ph, Me, o-ClC$_6$H$_4$, O, 80, 136 (benz. petr.
ether); Ph, Me, 2,4',6'-Cl$_3$C$_6$H$_2$, O, 75, 127-9; Ph, Me, iso-Pro, S, 119-120.

1/1

USSR

UDC 547.555

FADDEYEVA, V. K., SVIRSKAYA, P. I., and BASKAKOV, YU. A., All Union Scientific Research Institute for Chemical Means of Plant Protection, Moscow, State Committee for Chemistry USSR

"Herbicidal Derivatives of Hydroxylamine
XXXI. Synthesis and Reactions of O,N-Diacylsubstituted N-Arylhydroxylamines"

Abstract: The authors found that the acylation of N-carboalkyl-N-aryl-hydroxylamines with halophenoxyacyl chlorides is possible when the reaction is carried out in an anhydrous organic solvent -- methylene chloride. The reaction is then accompanied by evolution of gaseous hydrogen chloride. In some cases this reaction becomes hindered by a cross-acetylation reaction; for example with 2,4,5-trichlorophenoxyacetylchloride this becomes even the primary reaction. It goes very well at -20 to -10° in an anhydrous medium. In some cases this cross-acetylation occurs on recrystallization or even on taking the melting point. This reaction is also possible with phenyl-

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sulfonyl chlorides. The O-halophenoxyacyl-N-carboalkyl-N-arylhydroxyl-
amines are highly active herbicides comparable to or better than
halophenoxycarboxylic acids.

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USSR   UDC 547.435.2 + 632.954

BASKAKOV, YU. A., FADDEYEVA, V. K., ZHURAVSKAYA, T. S., and
SVIRSKAYA, P. I., All Union Scientific Research Institute for
Chemical Means of Plant Protection, Moscow, State Committee for
Chemistry USSR

"Herbicidal Derivatives of Hydroxylamines
XXX. O-Substituted N-halophenoxyacyl-N-alkyl(aryl)hydroxylamines"

Abstract: O-Acylhydroxylamines were obtained by reacting hydroxyl-
amines with anhydrides of alkylcarboxylic acids in presence of acid
catalysts (phosphoric acid or a mixture of phosphoric acid and carbox-
ylic acid anhydrides). The N-methylhydroxylamines react under slight-
ly more drastic reaction conditions than corresponding N-phenyl deri-
vatives. Reaction rate drops with higher molecular weight of the
anhydride. O-Carboethoxy-N-haloaryloxyacyl-N-phenyl(methyl)hydroxyl-
amines could be obtained from the reaction of ethylchlorocarbonate
and hydroxylamine in an inert solvent at 0 to 20° and in presence of
organic bases (pyridine, triethylamine). At room temperature hydroxyl-
amines react with isocyanates to yield O-carbamoyl-N-haloaryloxyacyl-
1/2

USSR

N-phenyl(methyl)hydroxylamines. Most of the compounds proved to be quite stable.

2/2

USSR   UDC: 681.3

FADDEYEVA, V. N. (Editor)

"Automatic Programming and Numerical Methods of Analysis"

Avtomaticheskoye programmirovaniye i chislennyye metody analiza. Zap.
nauchn. seminarov Leningr. otd. Mat. in-ta AN SSSR, 18 (cf. English
above. Notes of Scientific Seminars of the Leningrad Department of the
Mathematics Institute, Academy of Sciences of the USSR), Leningrad,
"Nauka", 1970, 216 pp, ill. 85 k. (from RZh-Kibernetika, No 7, Jul 71,
Abstract No 7V675 K)

[No abstract]

1/1   - 45 -

USSR

UDC 615.23:547.789.5

MIRYAN, N. I., TRINUS, F. P., IZOTOVA, P. V., FADEICHEVA, A. G.
and LISUNKIN, YU. I., Kiyev Scientific Research Institute of
Pharmacology and Toxicology

"Biological Activity of Some Thiazole Derivatives"

Abstract: Some thiazole derivatives act as breathing stimulators
and as antagonists to morphine, nicotine and to barbiturates. One
of the more active agents of this group is 2,4-diamino-5-phenyl-
thiazole hydrochloride (I) -- the so called daptazol. A simpli-
fied synthetic method for this compound with slightly improved
yield has been developed, and using this method, two new deriva-
tives were synthesized: 2,4-diamino-5-(p-fluorophenyl)thiazole
hydrochloride (II), and 2-4-diamino-5-(o-nitrophenyl)thiazole
hydrochloride (III). Biological studies were carried out which
showed that replacement of the amino groups in the 2 and 4 posi-
tions of the thiazole ring by hydroxyl groups resulted in dis-
appearance of the characteristic antimorphine action. The toxic-
ity was increased. Introduction of substituents in the phenyl ring
does not change the hypotensive activity of these compounds.
1/1

FADEYENKO, Yu.I.

conductivity σ and the pressure in the mainstream. In the far wake $(x/d > 150-200$, where d is the diameter of the cylindrical part of the model), this relationship approaches

$$\sigma \sim \frac{1}{\sqrt{p_{\infty}}}$$

Relationships of the electron density drop N_e to the distance along the wake are plotted in terms of x/d. The electron-collision frequencies data were determined taking electron velocity distribution into account.

On the basis of the experimentally obtained initial conditions, changes of the wake temperature, velocity, diameter, and electron concentration are calculated using different models of viscosity. The theoretical and experimental data are compared for a wake sector up to 500 calibers (x/d) in length.

Lobanov, V. F. and Yu. I. Fadeyenko. <u>Calculation of the stresses in an elastic sphere situated in a hypersonic stream.</u> IN: Dinamika sploshnoy sredy, Novosibirsk, no. 7, 1971, 226-232 (RZhMekh, 5/72, #5V285)

An axisymmetric problem is considered, dealing with determination of the stress field originating in a hollow elastic sphere during its presence in a hypersonic stream. The aerodynamic pressure acting upon the sphere is considered to be known and is given in the form of a function that depends upon the angular coordinate in accordance with Newton's law. The inner surface of the sphere is stress-free. The solution is represented in series form using Legendre polynomials. Numerical calculations were conducted on a digital computer for a solid sphere and for a hollow sphere with a Poisson coefficient m = 2.

USSR   UDC 621.317.757

FADEYEV, A. A.

"Selecting the Optimal Ratios of the Amplitudes of Test Signals when Measuring
Nonlinear Distortions by the Mutual Modulation Method"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi.
Vyp. 3 (Materials of the Scientific and Technical Conference of Leningrad
Electrotechnical Communications Institute, Vyp. 3), Leningrad, 1970, pp 252-
256 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A427)

Translation: This article contains an investigation of the effect of variations
of the ratios of the amplitudes of a biharmonic test signal on the signal/noise
ratio at the display input and also possible correspondence of the results of
the measurements to audio perception. It is demonstrated that the accuracy of
the measurements and correspondence to audio perception lead to opposite re-
quirements when selecting the amplitude ratios of the test signal. Preliminary
recommendations for selecting these ratios are presented.

1/1

USSR   UDC 621.375.9:535

ZHELNOV, B. L., SMIRNOB, V. S., FADEYEV, A. P.

"Instability of Unidirectional Radiation in a Ring Laser"

Leningrad, Optika i Spektroskopiya, Vol 28, No 4, April 1970,
pp 744-746

Abstract: This article contains a study of the problem of inter-
action of counter waves in a ring laser. It is demonstrated
that in the case of both homogeneous and inhomogeneous types of
broadening of the amplification circuit there is always a genera-
tion energy range which depends on the difference of the genera-
tion frequency and the atomic transition frequency inside which
the conditions of unidirectional radiation are unstable with
respect to excitation of a counter wave. In the solution of the
problems the field inside the resonator is found in the form of
traveling waves with amplitudes which slowly vary with time.
Both a gas laser and a solid state laser are considered. Ex-
planations are given for the dependence of Γ on the radiation
energy, where Γ defines the increment in the weak field ($E_{-} \sim \exp$
Γt). In the analysis of the solid state laser it is pointed out

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USSR

ZHELNOV, B. L., et al, Optika i Spektroskopiya, Vol 28, No 4,
April 1970, pp 744-746

that Im Γ gives a perturbation frequency shift analogous to the
effect of a collision in a gas. In addition, Im Γ/k defines
the phase rate of the current amplifying the field and caused
by spatial modulation of the overpopulation.

2/2

1/2   042   UNCLASSIFIED   PROCESSING DATE--13NOV70

TITLE--INSTABILITY OF UNIDIRECTIONAL EMISSION OF A RING LASER -U-

AUTHOR-(03)-ZHELNOV, B.L., SMIRNOV, V.S., FADEYEV, A.P.

COUNTRY OF INFO--USSR

SOURCE--SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 744-746

DATE PUBLISHED----APR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER RADIATION SPECTRUM, LASER STABILITY, MULTIMODE LASER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1199   STEP NO--UR/0051/70/028/000/0744/0746

CIRC ACCESSION NO--AP0124853
                             UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0124853

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE INTERACTION OF
OPPOSING MODES IN A RING LASER. IT IS SHOWN THAT FOR BOTH HOMOGENEOUS
AND INHOMOGENEOUS LINE BROADENING, THERE ALWAYS EXISTS AN EMISSION
ENERGY RANGE (WHICH DEPENDS ON THE MISMATCH BETWEEN THE LASING FREQUENCY
AND THE ATOMIC TRANSITION FREQUENCY) IN WHICH THE UNIDIRECTIONAL
EMISSION MODE IS UNSTABLE WITH RESPECT TO THE EXCITATION OF THE OPPOSING
MODE.

UNCLASSIFIED

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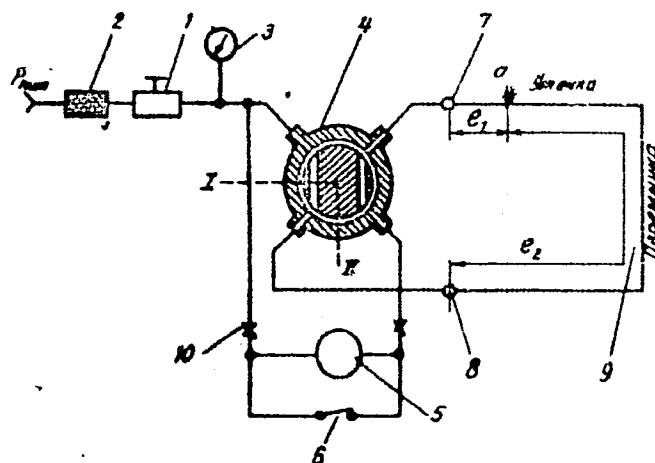Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

UR 0482

239656 LEAKAGE LOCATOR for compressed air mains which contains a differential manometer (5) by which the pressure drop to the leakage point can be measured from the two ends of the mains. The distance to the leakage point can be calculated from the pressuredrop ratio. A four-way cock (4) and reducing valve (1) with strainer (2) complete the equipment.
31.7.67 as 1176151/18-24. S.V.CHESINOI et al. (28.7.69) Bul 11/18.3.69. Class 42 m². Int.Cl.G 06 d.

AUTHORS: Chestnoy, S. V.; Fadeyev, A. V.; Finkel'shteyn, L. G.

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AA0051847

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ENGINEERING
Aeronautical

USSR   UDC 533.6:621.4

KOSTERIN, V. A., DUDKIN, V. T., and FADEYEV, L. V.

"Effect of Air Bypass Aft of the Compressor Into the Jet Nozzle on
Indicators of Gas Turbine Jet Engines"

Translation: The least-squares method, given several simplifying assump-
tions and hypotheses, was used to evaluate the effect that air bypass aft
of the compressor into the afterburner chamber has on the performance
indicators of turbojet engines, allowing for the work in the expansion
of air and changes in gas enthalpy aft of the turbine. Calculation results
are given as Mach number functions of the relative specific fuel consumption
and thrust, for a 1% change in the heat release factor and a 1% change in
the afterburner chamber pressure due to change in air bypass. Taking the
energy of the bypassed air into account markedly improves engine indicators
compared with the case when this energy is neglected.

1/1

USSR   UDC 629.12.001.72

LIKHOMANOV, V. A. and FADEYEV, O. V.

"Determination of the Coefficients of Pliancy in the Elastic Sealing of Ribs During the Action of an Ice Load"

Leningrad, Ledovyye Kachestva Sudov (Ice Properties of Ships), Gidrometeoizdat, 1973, pp 148-153

Abstract: A simplified method is proposed for determining the coefficients of pliancy in the elastic sealing of ribs in the presence of transverse stresses. Calculation formulas and graphs are presented for the case of the installation of one, two, or three stringers. An example is given of the calculation of a rib by means of the proposed graphs. 2 figures. 1 table. 2 references.

1/1

USSR

UDC 629.124.791.07

POPOV, YU. N., TEGKAYEVA, T. KH., and FADEYEV, O. V.

"Influence of the Shape of Icebreaker Contours Upon the Value of Ice Loads"

Leningrad, Ledovyye Kachestva Sudov (Ice Properties of Ships), Gidrometeoizdat, 1973, pp 79-87

Abstract: An analysis is made of the influence of the shape of icebreaker hull contours upon the value of ice loads. Formulas and graphs are presented, which illustrate the relationship of the value of the ice loads upon an icebreaker hull, including the structural components and the cladding, to the angle of inclination of the ribs, the completeness coefficient of the bow area of the waterline, and the length-to-beam ratio of the hull. It is shown that the shape of the hull contours affects to a considerable degree the value of the impact loads originating in the bow of the hull. 4 figures. 1 table. 2 references.

1/1

Acc. Nr: *AP0044021*

Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 45-48

PRINCIPLES UNDERLYING HYGIENIC EVALUATION
OF SURFACE DEACTIVATION METHODS

Gorodinskiy, S. M.; Goldshteyn, D. S.; Fadeyev, P. Ye.

Hygienid evaluation of methods employed in surface deactivation sould include: assessment of the given method's efficiency in removing radioactive contaiminants; appraisal of the radiation situation and of its changes in the course of deactivation work; an inquiry into the influence exerted by the deactivation procedure used on hygienic properties of the surface materials; Toxico-hygienic assessment of the substances, solutions and equipment employed; appreciation of the microclimate prevalent at the time of deactivation work, and also means available for the removal of the developing radioactive waste. The listed above elements in the hygienic evaluation of surface deactivation procedures are discussed in detail.

REEL/FRAME
19770458

USSR   UDC 621.375.9:535

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tion frequency and the atomic transition frequency inside which
the conditions of unidirectional radiation are unstable with
respect to excitation of a counter wave. In the solution of the
problems the field inside the resonator is found in the form of
traveling waves with amplitudes which slowly vary with time.
Both a gas laser and a solid state laser are considered. Ex-
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1/2

USSR

ZHELNOV, B. L., et al, Optika i Spektroskopiya, Vol 28, No 4, April 1970, pp 744-746

that Im Γ gives a perturbation frequency shift analogous to the effect of a collision in a gas. In addition, Im Γ/k defines the phase rate of the current amplifying the field and caused by spatial modulation of the overpopulation.

2/2

1/2   042   UNCLASSIFIED   PROCESSING DATE--13NOV70
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AUTHOR-(03)-ZHELNOV, B.L., SMIRNOV, V.S., FADEYEV, A.P.

COUNTRY OF INFO--USSR

SOURCE--SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 744-746

DATE PUBLISHED----APR70

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UNCLASSIFIED

AA0051847 ..

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

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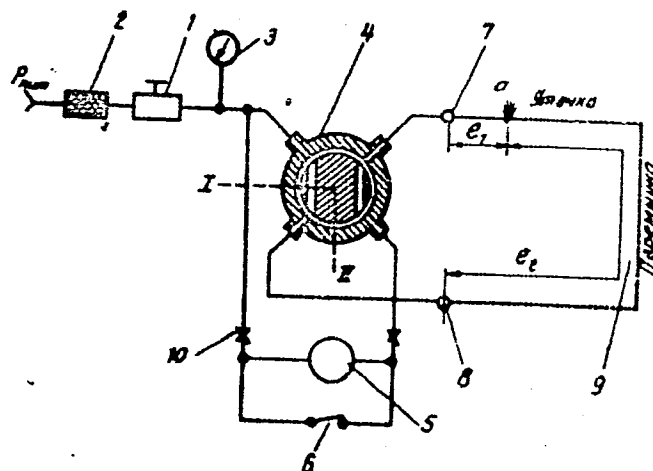31.7.67 as 1176151/18-24. S.V.CHESTNOI et al.
(28.7.69) Bul 11/18.3.69. Class 42 m^2 . Int.Cl.G 06 d.

AUTHORS: Chestnoy, S. V.; Fadeyev, A. V.; Finkel'shteyn, L. G.

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19820274

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AA0051847

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ЕВ

ENGINEERING
Aeronautical

USSR

UDC 533.6:621.4

KOSTERIN, V. A., DUDKIN, V. T., and FADEYEV, L. V.

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Tr. Kazan. aviats. in-ta (Transactions of the Kazan' Aviation Institute),
Vypusk (Issue) 114, 1970, pp 58-76 (from RZh-Mekhanika, No 12, Dec 70,
Abstract No 12B482, by M. A. Peshkin)

Translation: The least-squares method, given several simplifying assump-
tions and hypotheses, was used to evaluate the effect that air bypass aft
of the compressor into the afterburner chamber has on the performance
indicators of turbojet engines, allowing for the work in the expansion
of air and changes in gas enthalpy aft of the turbine. Calculation results
are given as Mach number functions of the relative specific fuel consumption
and thrust, for a 1% change in the heat release factor and a 1% change in
the afterburner chamber pressure due to change in air bypass. Taking the
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1/1

USSR

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USSR   UDC 629.124.791.07

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1/1

Acc. Nr: *AP0044021*

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PRINCIPLES UNDERLYING HYGIENIC EVALUATION
OF SURFACE DEACTIVATION METHODS

Gorodinskiy, S. M.; Goldshteyn, D. S.; Fadeyev, B. Ye.

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REEL/FRAME
19770458

USSR

YANAYT, Yu. A., ABAKUMOV, G. A., KROMSKII, G. I., SIMONOV, A. P., FADEYEV, V. V., and KHOKHLOV, R. V., Moscow State University imeni M. V. Lomonosov and The Physico-Chemical Institute imeni L. Ya. Karpov

"Generation in the Ultraviolet Band With Frequency Tuning in a Paraterphenyl Solution Excited by a Flash Bulb"

Abstract: This article discusses generation with fine tuning in the wavelength of 330-350 nm in a paraterphenyl solution excited by a flash bulb. One of the real problems in quantum electronics is the design of a frequency-tunable laser in the ultraviolet band of the spectrum. The authors show the broad possibilities here of using organic compounds as the active media especially paraterphenyl, which is found to be the best compound for producing tunable lasers in the ultraviolet band pumped by flash bulbs. The experimental procedures are discussed and the results are given in the form of an oscillogram and a table, which gives the threshold values and the limits of frequency tuning. The low values of the threshold energies for exciting the solutions shown in this table indicate that this pumping system is also effective for exciting a large number of other organic compounds. 1 figure, 1 table, bibliography of 3 titles.
1/1

FADEYEV, Yu. I.

JPRS 55982

15 May 72

EQUATIONS FOR A BOUNDARY LAYER ON A DEFORMABLE CONTOUR

[Article by Yu. N. Zhurov and Yu. I. Fadeyev, Leningrad: Kiev, Sienika, Russian, No 5, 1971, Izd-vo "Naukova Dumka", pp 46-51]

The problem of the motion of a deformable body, being a model of an object in hydrobionics, in a viscous fluid, is extremely complex and cannot be solved at the present time. Assuming that a boundary layer exists during the movement of a deformable body in a fluid of low viscosity, this problem can be divided into two parts: 1) the problem of the movement of a deformable body in a nonviscous fluid (potential problem), 2) the problem of a boundary layer on a deformable body.
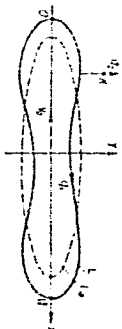
During the movement of a hydrobionic object the induced flow of fluid is three-dimensional and the deformations of its surface have the order of magnitude of the thickness of the body. The correctness of the boundary layer concept for those conditions evidently requires experimental confirmation. However, for deformations of plane or axially symmetric bodies of insignificant magnitude, which is a highly simple schematic representation of the movements of hydrobionic objects, the boundary layer concept is extremely probable. This is attributable to satisfaction of the principal requirements of this concept: low viscosity of the fluid (movement with large Reynolds numbers) and the condition of attachment on a wall. Using this schematic representation it is possible to note some

Organophosphorous Compounds

USSR   UDC 632.95

BLIZNYUK, N. K., KVASHA, Z. M., SPLNTSEVA, L. M., FADEYEV, YU. N., UNTERBERGER, V. K., and YOLOVA, M. N. , All-Union Scientific Studies Institute of Phytopatholog

"Process for Preparing Mixed Dialkyl Esters of the Higher Alkylphosphonous Acids"

Author's Certificate No 340665, filed 22 Jun 70, publsihed 29 Jun 72, (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8N470P by T. G. Chekareva)

Translation: Compounds having the general formula $RP(O)(OR')OR''$ (I) (R= alkyl, R' and R'' = C_1 to C_6) have acaricidal activity to the stable and sensitive form of vegetation mites. They are prepared by the reaction of $RP(O)(OR')OH$ (II), with a 5-10-fold excess of R''OH. For example, Cl_2 is passed through a solution of 0.03 moles of II ($R=C_9H_{19}$, $R'=C_6H_{13}$) and 0.15 moles of absolute BuOH in 20 ml of CH_2Cl_2 until the appearance of a yellow-green color. It is then concentrated and product I ($R=C_9H19$, $R'=C_6H13$, $R''=Bu$) is obtained, having $n^{20}_D = 1.4435$, $d^{20}_4 = 0.9211$, a boiling temperature of 176 to 178° at 1 (?)mm, a yield of about 100%. Other analogous compounds were prepared. R,R' and R''

1/2

USSR

BLIZNYUK, N. K., et al., Author's Certificate No 340665, filed 22 Jun 70, published 29 Jun 72

are given together with the boiling temperature in $^{\circ}C/mm$, $n^{20}D$, n_4^{20} ,

C_9H_{19}, C_6H_{13}, Et, 166-8/1, 1.4418, 0.9277;

C_9H_{19}, C_6H_{13}, Me, 160-2/1, 1.4430, 0.9425;

C_9H_{19}, C_6H_{13}, Pr, 172-4/1, 1.4430, 0.9270;

C_6H_{13}, Bu, Et, 124-6/1, 1.4320, 0.9512;

C_6H_{13},   Bu, 118-20/1, 1.4350, 0.9443;

C_9H_{19}, C_5H_{11}, Et, 158-60/1, 1.4400, 0.9446.

2/2

USSR   UDC 632.95

BLIZNYUK, N. K., KOLOMIYETS, A. F., GOLUBEVA, R. N., GRANIN, Ye. F.,
FADEYEV, Yu. N., VRUBLEVSKAYA, L. S., VARSHAVSKIY, S. L., KOFMAN, L. P.,
VIKHANSKIY, K. N.

"A Method of Making Derivatives of Aryl Esters of β-Isothiuronium
Ethanesulfonic Acid"

Translation: Compounds of the general formula $RO_3SC_2H_4SC(NH_2)=NH \cdot HA$ (I)
(R = aryl unsubstituted or substituted by Cl, No_2, Me; A = Cl or an organic
acid radical) are synthesized by reacting $Ch_2=CHSO_3R$ (II) with salts of
thiourea or a mixture of thiourea with inorganic or organic acids. Example.
Solutions of equimolar quantities of II and thiourea hydrochloride in
butanol which are saturated at 60-90°C are heated at 80-90°C for 1 hour,
cooled, and filtered, giving I with a yield of 85-96%. Evaporation of
the mother liquor gives an additional quantity of I. The overall yield of
I is 95-100%. The following compounds of type I (A = Cl) are synthesized
(given are R and the melting point in °C): Ph, 165-6; $4-ClC_6H_4$ (Ia),
1/2

USSR

BLIZNYUK, N. K., et al., USSR Author's Certificate No 337381, filed 1 Aug 63, published 1 Jun 72

144-6; $3\text{-}ClC_6H_4$, 168-70; $2,4\text{-}Cl_2C_6H_3$, 157-9; $2,4,5\text{-}Cl_3C_6H_2$, 178-80; $2,4,6\text{-}Cl_3C_6H_2$, 184 (decomp.); $4\text{-}NO_2C_6H_4$, 155-8; $3\text{-}MeC_6H_4$, 160-2. Saturated aqueous solutions of equimolar quantities of Ia and $2,4\text{-}Cl_2C_6H_3OCH_2COONa$ are mixed at 90-100°C, cooled, and filtered, giving compound I (A = $2,4\text{-}Cl_2C_6H_3OCH_2COO\text{-}$, R = $4\text{-}ClC_6H_4$), melting point 134-5°C, yield 99.5%. in concentrations of 3.1-25 mg per liter compound I suppresses the growth of the mycelium Botritis cinerea and Piricularia orysae by 50-100%; in concentrations of 0.25-1 mg per liter, compound I suppresses the growth of spores of Botritis cinerea and Piricularia orysae by 8-100%, and in a concentration of 0.1% the chemical suppresses rust of the wheat strain Puccinia graminis f. tritici by 42-58%.

2/2

USSR

3

KRUZOVA, S. I., SVISTUNOVA, N. S., GUS'KOVA, L. A., FADEYEV, YU. N., SAVENKOV,
N. F., KHOKHLOV, P. S., and BLYUZNYUK, N. K.

A Nematocide

Translation: The nematocidal activity is determined for substances of the
general formula $R(OCCH_2CHCl_2)_n$ (I) (R= phenyl or arylene n=1-2), which are
obtained by the reaction of halides of aromatic acids with vinyl chloride in
the presence of $AlCl_3$. I is used in concentration 0.1, 0.01 and 0.001%.
Some 30-50 mg I is dissolved in a 2-5-fold volume of acetone and mixed with
30-50 mg OP-7. The solution obtained is mixed with water. I ($R=C_6H_4$,
n=2) (Ia) and I (R= $p-C_6H_4NO_2$, n=1) (Ib) causes 100% distruction of gallic
nematode. I (R and n given): $p-BrC_6H_4$, 1 (Ic); $n-C_6H_4-NO_2$, 1; $n-C_6H_4Cl$,
1, Ia, b cause 100% destruction of Aphelenchoides besseyi, Aphelenchus avenae,
and Ia and Ic (concentration 0.1 and 0.01%) cause a 100% destruction of
Ditylenchus allii.
1/1

USSR

UDC 632.95

UNTERBERGER, V. K., FADEYEV, YU. N., YURLOVA, M. N., KARAVAYTSEVA, Z. D., BLIZNYUK, N. K., KVASHA, Z. N., KLIMOV, O. V., All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"Insectoacaricide"

Translation: Compounds with the general formula $(Me)(RS)P(S)SCH_2CH_2N(R^I)(R^{II})$ ($R = C_1-C_6$ — alkyl; R^I and R^{II} = lower alkyl or Ph) exhibit properties of insecticides and acaricides.

1/1

- 121 -

USSR

ZIL'BERMINTS, I. V., FADEYEV, YU. N., ZHURAVLEVA, L. M., All-Union
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"Effect of Specific Acaricides Against Susceptible and Resistant
Red Spider Populations"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70,
pp 34-38

Abstract: Experiments were conducted to determine the suitability
of some acaricides for killing resistant forms of mites. A susceptible
population of Tetranychus urticae Koch taken from Moscow greenhouses
was studied as well as three resistant populations produced in the
laboratory by keltane, mercaptophos and aramite selection. The
acaricides tested were acar, acrex, aramite, binapacryl, eradex,
halecron, keltane, mesurol, micazine, milbex, and morestan. The
results of these studies show that any resistant red spider popula-
tion can be destroyed by proper selection of three of four specific
acaricides. In the case where mites develop a resistance to organo-
chlorine compounds, substitution or alternate application of acaricides
from the keltane-acar-milbex-micazine group is not recommended.
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Substitution and alternate application of acrex, aramite, binapacryl and morestan may be used as well as combination of these chemicals with any from the first group (keltane, acar, milbex and micazine). All compounds tested with the exception of mesurol can be used to combat mites which are resistant to thiophos, mercaptophos, rogor and other similar organophosphorus compounds. Mesurol should not be used simultaneously with organophosphorus compounds to avoid development of resistance to this entire group of pesticides.

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"The Acaricide Activity of 0-Butyl-S-Methylbenzyldithiophosphonate"

Abstract: The active ingredient of the acaricide which is also called 228-F was tested on the common spider mite Tetranychus urticae. A natural Moscow region mite was used as the sensitive breed, since it had not previously been treated with pesticides and had been cultivated on bean plants in the laboratory for some time. A resistant breed was acquired in the laboratory by treating sensitive mites with methylethylthiophos. Infested leaves were doused with a water-acetone emulsion containing the preparation and a mortality count was taken 72 hours later. To determine contact, intestinal and ovicide action infested leaves were submerged in the solution for 5 seconds. A mortality count was made in 72 hours and unhatched eggs were counted in 4 days. To determine length of action mites were placed on treated bean leaves 3, 5, and 10 days after treatment, then a mortality count was made 72 hours later. The preparation was also used on broad beans against
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aphis craccivora Koch, with a mortality count made after 48 hours. 0-butyl-S-methylbenzyldithiophosphonate showed a high contact acaricidity not only with sensitive but also with resistant mites. The acaricide had poor lasting and ovicide results, but did affect the vitality of larvae from treated eggs. Mixture with BI 58 did not lessen toxicity and increased both lasting effects and the time required for the mites to become resistant to the acaricide.

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